



By Lt. Matt Ventimiglia

Shortly before we accepted our first eight-bladed NP2000 aircraft in June 2004, our squadron received training on the new system. One of the aircraft's new safety features is the pitch-rate delay (PRD). If the propeller hydraulic-fluid pressure is lost, the PRD tries to limit the rate at which the blade angle increases against blade-counterweight force. If hydraulic pressure cannot be regained, then the last step in the NATOPS emergency procedure is to feather the propeller. If enough propeller fluid is left, the propeller should go to full feather.

During our initial training, we asked what the outcome of a PRD scenario would be if the prop did not go to full feather; the answer was vague. No one was sure of the exact blade angle and drag to expect, and there is no chart similar to the pitchlock-decision chart in the four-bladed NATOPS. *[See what happens when the Approach editor is a former P-3 NFO: a prop article mentioning pitchlock gets printed.—Ed.]*

I remember saying to myself, "I do not want to be the first guy to have PRD." Well, I jinxed myself.

I just had fired the port engine back up during a functional check flight (FCF) B. Before I could advance the power lever to match the starboard engine, the port main-pump light illuminated. I immediately advanced

the port power lever to max, and the rpm climbed to 103.9 percent. Normal governing of 100 percent was not maintained. I was concerned if I waited for the second pump light to come on, then not enough fluid would be left to get full feather. With my hand on the condition lever to feather the prop, the second pump light came on.

As the copilot broke out the checklist, I turned for home. We were puzzled, though, because NATOPS says an EPC-fail light should accompany this condition, but we didn't get the light. To confirm I was in PRD, I slightly pulled back the power lever, and the rpm tracked as I expected. But, when I put the power lever back to max, I only got 100.2-percent rpm, and it quickly started to decay.

NATOPS says engine operation should be continued until 91-percent rpm no longer can be maintained. However, NATOPS also says that failure to continue engine operation may result in high asymmetric drag and loss of directional control. At 91-percent rpm, our 5th- and 10th-stage compressor bleed-air valves open, which we thought would cause our engine to flameout. When we reached 91 percent, we were surprised to see 800 IHP; this reading was low but still positive horsepower. We didn't see any propeller hydraulic fluid on the nacelle; everyone in the plane was a bit confused.

I kept the engine online until 68 percent. I then

decided to feather it with the condition lever—mostly in an effort to control the situation, even though the engine still was producing about 600 IHP. The propeller feathered, and we made preparations for a single-engine trap at home. Not only was this PRD emergency the first in the NP2000, it also was the first single-engine emergency for everyone on the crew. We were anxious to get on deck. To make matters worse, approach had us set up for an arrested landing on the wrong runway. Eventually, tower redirected us to the runway with the

short-field arresting gear. We trapped without further difficulties and spent the rest of the day debriefing maintenance and the crew.

Our systems knowledge definitely helped us, even though no one ever had seen this emergency before, and the outcome was not what was expected. It pays to get in the weeds on systems knowledge, especially with an immature system. Our squadron has studied NP2000 in great detail, and we still are learning new aspects about it. The better we understand our systems and the



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procedures, the better we can assess the scenarios that aren't covered in NATOPS.

If a procedure is not in NATOPS but should be, do something about it. I think each community has systems problems or quirks that everyone knows how to handle but that are not written anywhere. Even though this single experience provided a lot of data on pitch-rate delay, the subject still is somewhat of a mystery. 🦅

Lt. Ventimiglia flies with VAW-124.